

Having thus described the preferred embodiment(s), the invention is now claimed to be:

1. A processing system for forming golf ball preforms, comprising:

an internal mixer that compounds a batch of golf ball core stock, the internal mixer having a mixer outlet;

5 a sheeter that forms sheets of golf ball core stock, the sheeter having a sheeter inlet proximate the mixer outlet and having a sheeter outlet; and

preform shaping means for forming golf ball core preforms from the sheets of golf ball core stock.

2. The system of claim 1, where the sheeter includes:

an extruder portion and a calender portion,

the extruder portion receiving the compounded golf ball core stock from the mixer outlet and having at least one screw that feeds the
5 compounded golf ball core stock to the calender portion,

the calender portion having a first roller and a second roller that is upwardly displaced from the first roller to define a nip point where the sheets of golf ball core stock are formed from the compounded golf ball core stock.

3. The system of claim 2, wherein the preform shaping means includes:

a warm-up mill for warming the sheets of golf ball core stock;
and

5 an extruder for forming golf ball core preforms of a desired shape from the warmed sheets of golf ball core stock.

4. The system of claim 3, further including a cool down unit for cooling the sheets of golf ball core stock prior to being warmed by the warm-up mill.

5. The system of claim 4, wherein the warm-up mill combines the first-mentioned batch of golf ball core stock with a second batch of golf ball core stock to form the warmed sheets of golf ball core stock.

6. The system of claim 3, further including means for rolling the warmed sheets of golf ball core stock into "pigs" prior to being extruded into the golf ball core preforms.

7. The system of claim 2, wherein the extruder portion includes two counter-rotating screws that feed the compounded golf ball core stock to the calender portion.

8. The system of claim 1, further including an extruder that forms golf ball core preforms of a desired shape from the sheets of golf ball core stock.

9. The system of claim 8, further including means for rolling the sheets of golf ball core stock into "pigs" prior to being extruded into the golf ball core preforms.

10. The system of claim 1, where the sheeter includes:
an extruder portion and a die head portion,
the extruder portion receiving the compounded golf ball core
stock from the mixer outlet and having at least one screw that feeds the
5 compounded golf ball core stock to the die head portion,
the die head portion having at least one die and the
compounded golf ball core stock being extruded through the at least one
die to form golf ball core preforms of a desired shape.

11. The system of claim 10, wherein the extruder portion
includes two counter-rotating screws that feed the compounded golf ball
core stock to the calender portion.

12. A method of forming golf ball core preforms,
comprising:

- compounding a batch of golf ball core stock in a mixer;
sheeting the batch of compounded golf ball core stock with
5 a sheeter, the sheeter including an extruder portion having at least one
screw; and
shaping golf ball preforms from the sheeted batch of golf ball
core stock.

13. The method of claim 12, wherein the sheeting step
includes:

- feeding the batch of compounded golf ball core stock from
the extruder portion to a calender portion of the sheeter, the calender
5 portion including a first roller and a second roller that is upwardly displaced
from the first roller to define a nip point therebetween; and
passing the batch of compounded golf ball core stock
between the first and second rollers to form the sheeted batch of golf ball
core stock.

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14. The method of claim 13, wherein the shaping step includes:

rolling the sheeted batch of golf ball core stock into a "pig";
and

5 extruding the "pig" through a die associated with a hydraulic extruder to form golf ball core preforms.

15. The method of claim 14, further including:
before to the rolling step,
cooling the sheeted batch of golf ball core stock;
determining one or more properties of the sheeted batch of
5 golf ball core stock; and
warming the sheeted batch of golf ball core stock in a warm-up mill.

16. The method of claim 15, wherein the warming step includes:

combining the sheeted batch of golf ball core stock with a second batch of sheeted golf ball stock in the warm-up mill.

17. The method of claim 13, wherein the extruder portion includes two counter-rotating screws that feed the compounded golf ball core stock to the calender portion.

18. The method of claim 12, wherein the sheeting step includes:

- feeding the batch of compounded golf ball core stock from the extruder portion to a die head portion of the sheeter, the die head portion including at least one die;
- 5 extruding the batch of compounded golf ball core stock through the die; and
- cutting the extruded core stock to form the golf ball preforms.

19. The method of claim 18, wherein the extruder portion includes two counter-rotating screws that feed the compounded golf ball core stock to the die head portion.

20. A golf ball preform manufactured by the processing system of claim 1.

21. A golf ball preform manufactured by the method of claim 12.